QUALITY CONTROL REPORTS FOR

SEMI DENSE BITUMINOUS CONCRETE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W. No 07/HSN/SDBC(QB)/2014-15 16.06.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Mr. H.S. Nataraj,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements to Roads, Drains and Asphalting to Roads in Vinayaka Layout 1st Main, 1st stage in Ward No.07, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-TND/432/2012-13 Dated: 16.03.2013
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	16.06.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	88	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	292	Min. 220

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Note:

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16.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP,
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements to Roads, Drains and Asphalting to Roads in Vinayaka Layout 1st Main, 1st stage in Ward No.07, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/432/2012-13 Dated: 16.03.2013
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	304	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.82	21.24	**21.53**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP,
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements to Roads, Drains and Asphalting to Roads in Vinayaka Layout 1st Main, 1st stage in Ward No.07, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/432/2012-13 Dated: 16.03.2013
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	299	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.19	21.73	**21.46**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W. No 07/HSN/SDBC/Shape_T/2014-15 : 16.06.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of Work	: Improvements to Roads, Drains and Asphalting to Roads in Vinayaka Layout 1st Main, 1st stage in Ward No.07, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/E-TND/432/2012-13 Dated: 16.03.2013
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 16.06.2014

Result : Flakiness Index = **12.15%**

Elongation Index = **13.28%**

Result : Combined Flakiness & Elongation index **25.43%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. H.S. Nataraj,** Contractor, Bangalore.
Name of the Work	Improvements to Roads, Drains and Asphalting to Roads in Vinayaka Layout 1st Main, 1st stage in Ward No.07, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-TND/432/2012-13 Dated: 16.03.2013
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	19.06.2014

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	375	7.1	7.14	92.86	90-100	
4.75	2585	49.2	56.38	43.62	35-51	
2.36	680	13.0	69.33	30.67	24-39	
1.18	500	9.5	78.86	21.14	15-30	
0.3	270	5.1	84.00	16.00	9-19	
0.075	480	9.1	93.14	6.86	3-8	

Total Weight of Sample: **5350** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	325	6.1	6.07	93.93	90-100	
4.75	2585	48.3	54.39	45.61	35-51	
2.36	785	14.7	69.07	30.93	24-39	
1.18	425	7.9	77.01	22.99	15-30	
0.3	390	7.3	84.30	15.70	9-19	
0.075	425	7.9	92.24	7.76	3-8	

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